

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended): An apparatus comprising:

a microwave tunable device is included in a phase array antenna system, the microwave tunable device including:

a MgO substrate;

a ferroelectric/dielectric $(Ba_{1-x}, Sr_x)TiO_3$ (BST) thin film oriented in a (111) direction coupled directly to the MgO substrate which is and being directly grown on the MgO substrate by pulsed laser ablation, wherein x is a number and represents a composition ratio; and

an interdigital single layer electrode pattern formed on the ferroelectric/dielectric BST thin film and separated from the MgO substrate.

Claim 2 (Previously Presented): The apparatus of claim 1, wherein the ferroelectric/dielectric BST thin film completely covers the MgO substrate.

Claim 3-7 (Canceled)

Claim 8 (Currently Amended): An apparatus comprising:

a microwave tunable device is included in a satellite communication system, the microwave tunable device including:

a MgO substrate;

a ferroelectric/dielectric $(Ba_{1-x}, Sr_x)TiO_3$ (BST) thin film oriented in a (111) direction coupled directly to the MgO substrate which is and being directly grown on the MgO substrate by pulsed laser ablation, wherein x is a number and represents a composition ratio; and

an interdigital single layer electrode pattern formed on the ferroelectric/dielectric BST thin film and separated from the MgO substrate.

Claim 9 (Previously Presented): The apparatus of claim 8, wherein the ferroelectric/dielectric BST thin film completely covers the MgO substrate.